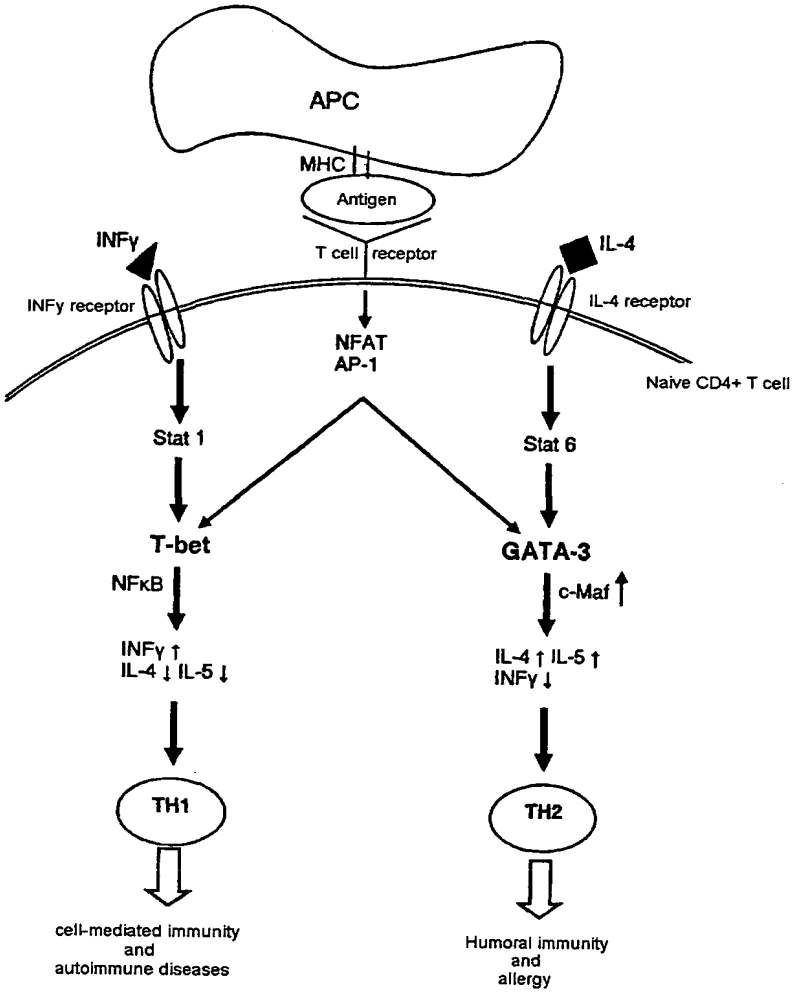
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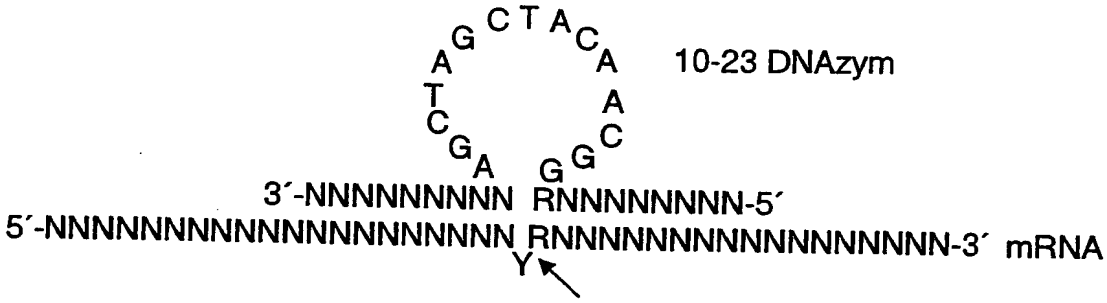
MHC
Antigen
T cell receptor
INFγ
IL-4
INFγ receptor
IL-4 receptor
NFAT
AP-1
Naive CD4+ T cell
Stat 1
Stat 6
T-bet
GATA-3
NFκB
c-Maf
INFγ ↑
IL-4 ↓ IL-5 ↓
IL-4 ↑ IL-5 ↑
INFγ ↓
TH1
TH2
cell-mediated immunity
and
autoimmune diseases
Humoral immunity
and
allergy

**Fig. 1**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A A
T A
C C
G A G G
10-23 DNAzym
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5′-NNNNNNNNNNNNNNNNNNN RNNNNNNNNNNNNNNNNN-3′ mRNA
Y

**Fig. 2**

**Fig. 3**

| Name | DNAzyme Sequenz |
|---|---|
| hgd1 | 5'-TCGGTCAGAggctagctacaacgaTGCGTTGCT-3' |
| hgd2 | 5'-GGCGTACGAggctagctacaacgaCTGCTCGGT-3' |
| hgd3 | 5'-GGCGGCGTAggctagctacaacgaGACCTGCTC-3' |
| hgd4 | 5'-CTCGGGTCAggctagctacaacgaCTGGGTAGC-3' |
| hgd5 | 5'-TCCTCTGCAggctagctacaacgaCGGGGTCCT-3' |
| hgd6 | 5'-ACTCTGCAAggctagctacaacgaTCTGCGAGC-3' |
| hgd7 | 5'-GGGCGACGAggctagctacaacgaTCTGCAATT-3' |
| hgd8 | 5'-AAGGGGCGAggctagctacaacgaGACTCTGCA-3' |
| hgd9 | 5'-AAAACGGGAggctagctacaacgaCAGGTTGTA-3' |
| hgd10 | 5'-AGAATAAAAggctagctacaacgaGGGACCAGG-3' |
| hgd11 | 5'-ATGGCAGAAggctagctacaacgaAAAACGGGA-3' |
| hgd12 | 5'-AACTGGGTAggctagctacaacgaGGCAGAATA-3' |
| hgd13 | 5'-ATCCAAAAAggctagctacaacgaTGGGTATGG-3' |
| hgd14 | 5'-AGGGGAAGAggctagctacaacgaAAAAATCCA-3' |
| hgd15 | 5'-TTTTAAAAAggctagctacaacgaTATCTTGGA-3' |
| hgd16 | 5'-GTGGGGGGAggctagctacaacgaGGGAAGGCT-3' |
| hgd17 | 5'-GTTGAATGAggctagctacaacgaTTGCTTTCG-3' |
| hgd18 | 5'-GTCGTTGAAggctagctacaacgaGATTTGCTT-3' |
| hgd19 | 5'-GGCCCGGAAggctagctacaacgaCCGCGCGCG-3' |
| hgd20 | 5'-TCACCTCCAggctagctacaacgaGGCCTCGGC-3' |
| hgd21 | 5'-CCGCCGTCAggctagctacaacgaCTCCATGGC-3' |
| hgd22 | 5'-GGTGGCTCAggctagctacaacgaCCAGCGCGG-3' |
| hgd23 | 5'-CGTTGAGCAggctagctacaacgaGGCGGGGTG-3' |
| hgd24 | 5'-CCGCGTCCAggctagctacaacgaGTAGGAGTG-3' |
| hgd25 | 5'-CAGCGGGTAggctagctacaacgaTGCGCCGCG-3' |
| hgd26 | 5'-GCACATCCAggctagctacaacgaCTCCTCCGG-3' |
| hgd27 | 5'-AAAAGCACAggctagctacaacgaCCACCTCCT-3' |
| hgd28 | 5'-TAAAAAGCAggctagctacaacgaATCCACCTC-3' |
| hgd29 | 5'-GACCGTCGAggctagctacaacgaGTTAAAAAG-3' |
| hgd30 | 5'-TTGCCTTGAggctagctacaacgaCGTCGATGT-3' |
| hgd31 | 5'-AGGGCGGGAggctagctacaacgaGTGGTTGCC-3' |
| hgd32 | 5'-TGGCCCTGAggctagctacaacgaCGAGTTTCC-3' |
| hgd33 | 5'-ACCTCTGCAggctagctacaacgaCGTGGCCCT-3' |
| hgd34 | 5'-CGGAGGGTAggctagctacaacgaCTCTGCACC-3' |
| hgd35 | 5'-GGCGGCACAggctagctacaacgaCTGGCTCCC-3' |
| hgd36 | 5'-CGGGCGGCAggctagctacaacgaACCTGGCTC-3' |
| hgd37 | 5'-AGGGATCCAggctagctacaacgaGAAGCAGAG-3' |
| hgd38 | 5'-GGGTAGGGAggctagctacaacgaCCATGAAGC-3' |
| hgd39 | 5'-GGGCTGAGAggctagctacaacgaTCCAGGGGG-3' |
| hgd40 | 5'-GTGGATGGAggctagctacaacgaGTCTTGGAG-3' |
| hgd41 | 5'-CGTGGTGGAggctagctacaacgaGGACGTCTT-3' |
| hgd42 | 5'-GGGGGTAGAggctagctacaacgaGGAGAGGGG-3' |
| hgd43 | 5'-GGAGGAGGAggctagctacaacgaGAGGCCGGG-3' |
| hgd44 | 5'-GCCCCCCGAggctagctacaacgaAAGGAGGAG-3' |
| hgd45 | 5'-CCGGGGAGAggctagctacaacgaGTCCTTCGG-3' |
| hgd46 | 5'-GGACAGCGAggctagctacaacgaGGGTCCGGG-3' |
| hgd47 | 5'-TGGGGTGGAggctagctacaacgaAGCGATGGG-3' |
| hgd48 | 5'-CTTGAGGCAggctagctacaacgaTCTTTCTCG-3' |
| hgd49 | 5'-CACCTGGTAggctagctacaacgaTTGAGGCAC-3' |

| Name | DNAzyme Sequenz |
|---|---|
| hgd50 | 5'-GCAGGGGCAggctagctacaacgaCTGGTACTT-3' |
| hgd51 | 5'-CCAGCTTCAggctagctacaacgaGCTGTCGGG-3' |
| hgd52 | 5'-GTGGGACGAggctagctacaacgaTCCAGCTTC-3' |
| hgd53 | 5'-GGAGTGGGAggctagctacaacgaGACTCCAGC-3' |
| hgd54 | 5'-ATGCTGCCAggctagctacaacgaGGGAGTGGG-3' |
| hgd55 | 5'-GGGCGGTCAggctagctacaacgaGCTGCCACG-3' |
| hgd56 | 5'-GAGGCTCCAggctagctacaacgaCCAGGGCGG-3' |
| hgd57 | 5'-GTGGGTCGAggctagctacaacgaGAGGAGGCT-3' |
| hgd58 | 5'-AGGTGGTGAggctagctacaacgaGGGGTGGTG-3' |
| hgd59 | 5'-ACTCGGGCAggctagctacaacgaGTAGGGCGG-3' |
| hgd60 | 5'-GGAGCTGTAggctagctacaacgaTCGGGCACG-3' |
| hgd61 | 5'-GGACTTGCAggctagctacaacgaCCGAAGCCG-3' |
| hgd62 | 5'-GGGCCTGGAggctagctacaacgaTTGCATCCG-3' |
| hgd63 | 5'-TGTGCTGGAggctagctacaacgaCGGGCCTTG-3' |
| hgd64 | 5'-GTTCACACAggctagctacaacgaTCCCTGCCT-3' |
| hgd65 | 5'-CAGTTCACAggctagctacaacgaACTCCCTGC-3' |
| hgd66 | 5'-CACAGTTCAggctagctacaacgaACACTCCCT-3' |
| hgd67 | 5'-GTTGCCCCAggctagctacaacgaAGTTCACAC-3' |
| hgd68 | 5'-TCGCCGCCAggctagctacaacgaAGTGGGGTC-3' |
| hgd69 | 5'-CCCGTGCCAggctagctacaacgaCTCGCCGCC-3' |
| hgd70 | 5'-GGCGTTGCAggctagctacaacgaAGGTAGTGT-3' |

# Fig. 4

Multiple Sequence Alignments GATA-3

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Sequenz_1   1     GGCGCCGTCTTGATACTTTCAGAAAGAATGCATTCCCTGTAAAAAAAAAAAAAAAAAAGAGT   60
Sequenz_2   ****  ------------------------------------------------------------   ****
Sequenz_3   1     GGCGCCGTCTTGATACTTTCAGAAAGAATGCATTCCCTGTAAAAAAAAAAAAAAAAAAGAGT   60

Sequenz_1   61    NN-GAGAGNGNGAGAGAGAGAGAAGAAGAGAGAGAGACGGAGGGAGAGCGAGACAGAGCG   119
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Sequenz_3   61    NNTGAGAGNGNGAGAGAGAGAGAAGAAGAGAGAGAGACGGAGGGAGAGCGAGACAGAGCG   120

Sequenz_1   120   AGCAACGCAATCTGAC CGAGCAGGTCGTACGCCGCCGCCTCCTCCTCCTCTCTGCTCTTC   179
Sequenz_2   ****  ------------------------------------------------------------   ****
Sequenz_3   121   AGCAACGCAATCTGAC CGAGCAGGTCGTACGCCGCCGCCTCCTCCTCCTCTCTGCTCTTC   180

Sequenz_1   180   GCTACCCAGGTGACCC GAGGAGGGACTCCGCCTCCGAGCGGCTGAGGACCCCGGTGCAGA   239
Sequenz_2   ****  ------------------------------------------------------------   ****
Sequenz_3   181   GCTACCCAGGTGACCC GAGGAGGGACTCCGCCTCCGAGCGGCTGAGGACCCCGGTGCAGA   240

Sequenz_1   240   GGAGCCTGGCTCGCAG AATTGCAGAGTCGTCGCCCCTTTTTACAACCTGGTCCCGTTTTA   299
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Sequenz_2   1     ----------------------------------------TCCCAGCCTTCCCA   14
Sequenz_3   361   CTCCAAGATAATTTTT AAAAAACCTTCTCCTTTGCTCACCTTTGCTTCCCAGCCTTCCCA   420

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Sequenz_2   15    TCCCCCCACCGAAAGC AAATCATTCAACGACCCCCGACCCTCCGACGGCAGGAGCCCCCC   74
Sequenz_3   421   TCCCCCCACCGAAAGC AAATCATTCAACGACCCCCGACCCTCCGACGGCAGGAGCCCCCC   480

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Sequenz_3   481   GACCTCCCAGGCGGAC CGCCCTNCCTCNCCNCGCGCGGGTTCCGGGCCCGGCGAGAGGGC   540

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Sequenz_2   134   GCGANNACAGCCGAGG CCATGGAGGTGACGGCGGACCAGCCGCGCTGGGTGAGCCACCAC   193
Sequenz_3   541   GCGANNACAGCCGAGG CCATGGAGGTGACGGCGGACCAGCCGCGCTGGGTGAGCCACCAC   600

Sequenz_1   600   CACCCCGCCGTGCTCA ACGGGCAGCACCCGGACACGCACCACCCGGGCCTCAGCCACTCC   659
Sequenz_2   194   CACCCCGCCGTGCTCA ACGGGCAGCACCCGGACACGCACCACCCGGGCCTCAGCCACTCC   253
Sequenz_3   601   CACCCCGCCGTGCTCA ACGGGCAGCACCCGGACACGCACCACCCGGGCCTCAGCCACTCC   660

Sequenz_1   660   TACATGGACGCGGCGC AGTACCCGCTGCCGGAGGAGGTGGATGTGCTTTTTAACATCGAC   719
Sequenz_2   254   TACATGGACGCGGCGC AGTACCCGCTGCCGGAGGAGGTGGATGTGCTTTTTAACATCGAC   313
Sequenz_3   661   TACATGGACGCGGCGC AGTACCCGCTGCCGGAGGAGGTGGATGTGCTTTTTAACATCGAC   720

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Sequenz_3  1141  AAGCTGGAGTCGTCCC ACTCCCGTGGCAGCATGACCGCCCTGGGTGGAGCCTCCTCGTCG  1200

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Sequenz_2   794  ACCCACCACCCCATCA CCACCTACCCGCCCTACGTGCCCGAGTACAGCTCCGGACTCTTC   853
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Sequenz_3  1261  CCCCCCAGCAGCCTGC TGGGCGGCTCCCCCACCGGCTTCGGATGCAAGTCCAGGCCCAAG  1320

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Sequenz_2  1391  CACATGCTGACCACGC CCACGCCGATGCACCCGCCATCCAGCCTGTCCTTTGGACCACAC  1450
Sequenz_3  1801  CACATGCTGACCACGC CCACGCCGATGCACCCGCCATCCAGCCTGTCCTTTGGACCACAC  1860

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Sequenz_3  2221  GGGTAGCTGTAAGGCA TGAAGGATGCCAAGAAGTTTAAGGAATATGGGAGAAATAGTGTG  2280

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Sequenz_3  2341  TCACTGGCCACAGTTG TTTGATGCATTAAAAGAAAATAAAAAAAAGAAAAA-GAGAAAAG  2399

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Sequenz_2  1991  AAAAAAAAAGAAAAAA GTTGTAGGCGAATCATTTGTTCAAAGCTGTTGGCCCTCTGCAAA  2050
Sequenz_3  2400  AAAAAAAAAGAAAAAA GTTGTAGGCGAATCATTTGTTCAAAGCTGTTGGCC-TCTGCAAA  2458

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Sequenz_1  ****  -------------------------------------------------------------  ****
Sequenz_2  2171  TATAATTCAAAGCACC AAAATAAGAAAAGATGTAGATTTATTTCATCATATTATACAGAC  2230
Sequenz_3  2579  TATAATTCAAAGCACC AAAATAAGAAAAGATGTAGATTTATTTCATCATATTATACAGAC  2638

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Sequenz_3  2639  CGAACTGTTGTATAAA TTTATTTACTGCTAGTCTTAAGAACTGCTTTCTTTCGTTTGTTT  2698

Sequenz_1  ****  -------------------------------------------------------------  ****
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Fig. 4 A

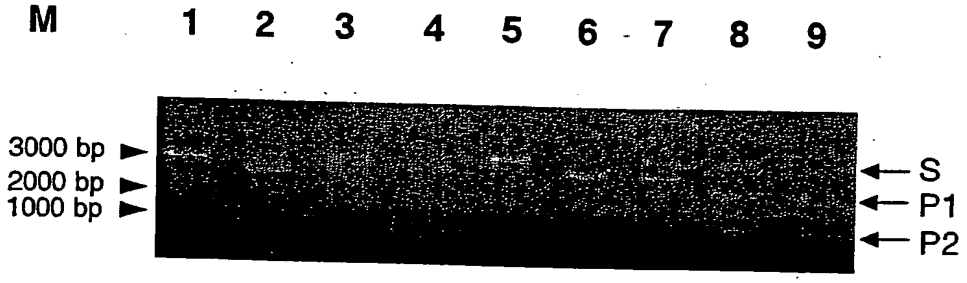


Fig. 5

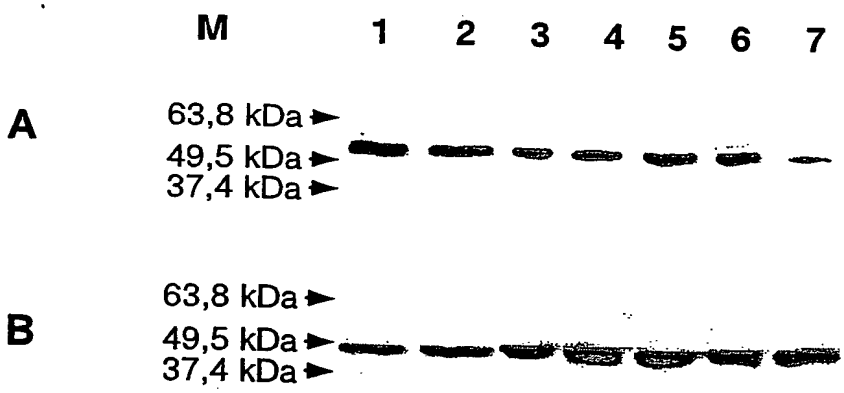


Fig. 6

Fig. 7

| Name | DNAzyme Sequenz |
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| td2 | GGGCTCTGAggctagctacaacgaGCCTGGCTT |
| td3 | GGGACCCCAggctagctacaacgaCGGAGCCCG |
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| td5 | GGCGGGGGAggctagctacaacgaCCGAGGGCC |
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| td46 | CTTTCCACAggctagctacaacgaTGCACCCAC |
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# Fig. 8

Multiple Sequenz Alignments T-bet

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Fig. 8A

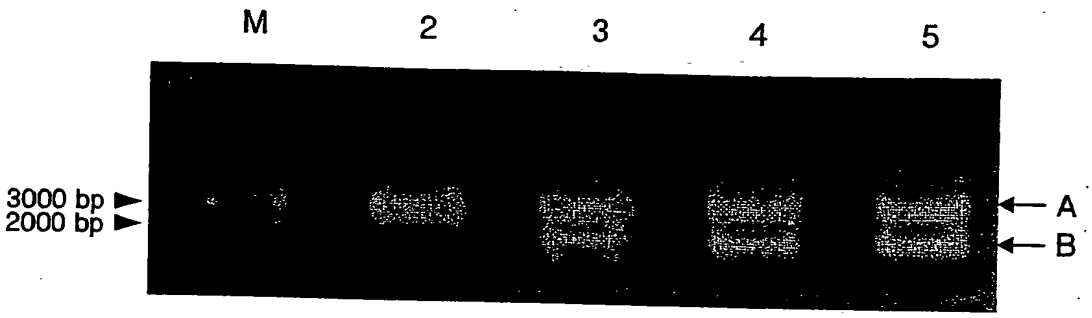
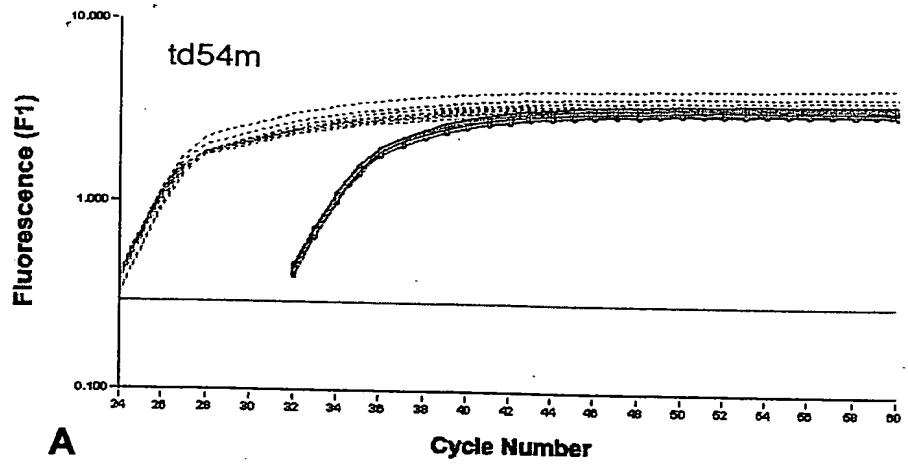



Fig. 9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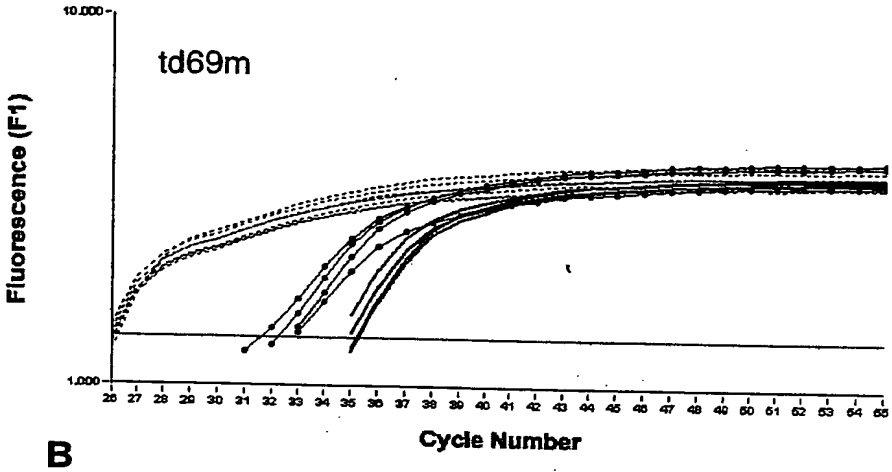
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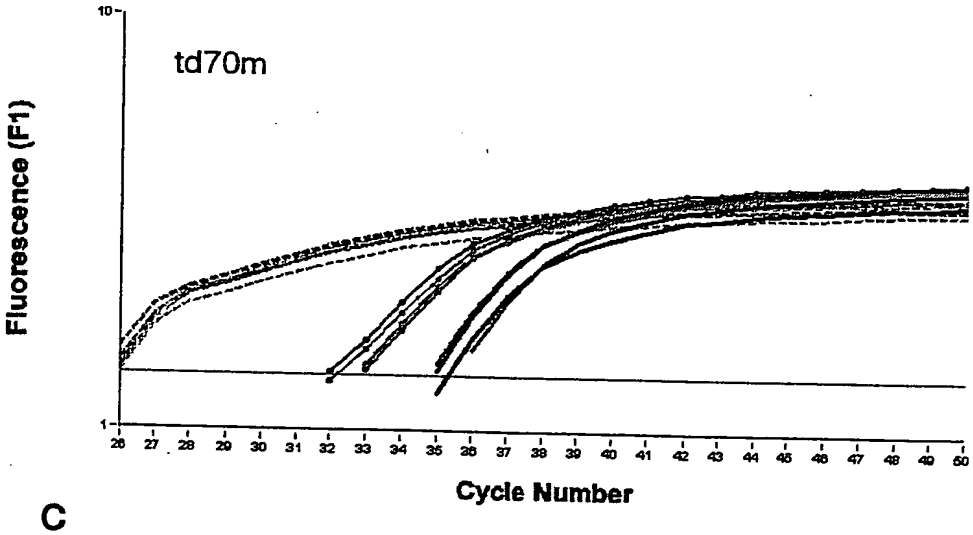
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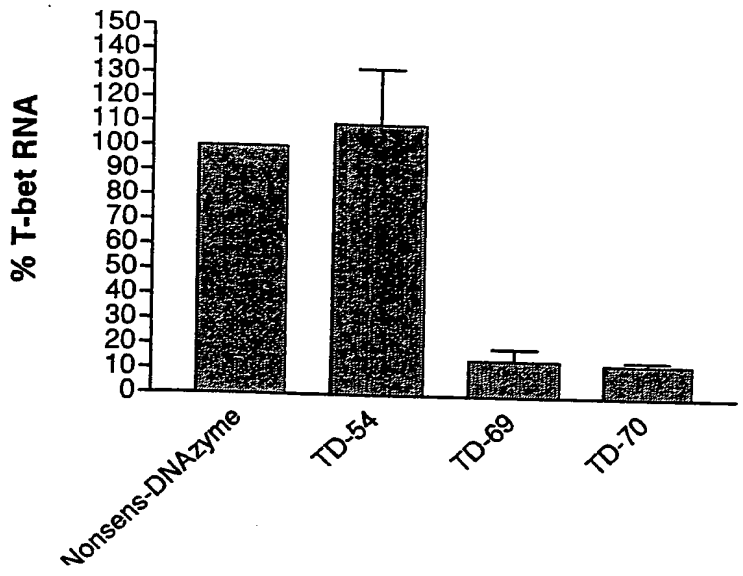
Cycle Number

C

Fig. 10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Nonsens-DNAzyme
TD-54
TD-69
TD-70

Fig. 11